Abstract of the Invention

A TIRE HAVING AN OVERLAY FOR NOISE IMPROVEMENT

A tire 10has an outer tread and an inner casing with a belt structure 16, 17, the belt structure includes an overlay ply 18, 30, 60 reinforced by parallel cords oriented circumferentially having a width W between lateral outermost edges, the overlay ply 18, 30, 60 having a pattern of cuts 22 within discrete segments 19. Each segment 19 has a repeated pattern of cuts 22 arranged in six rows R_1-R_6. Each cut 22 is spaced at least 100 mm from a cut in an adjacent row and is laterally offset from an adjacent cut by at least 3 mm, this distance being smaller than the cut width to ensure that each overlay cord is cut. The overlay cord lengths within the respective rows is of any length L in the range 200 to 500 mm. The cut pitch within the respective rows is of any percentage P of the tire circumference in the range 8 to 30%. The circumferential offset between two adjacent segments 19 is of any percentage O of the tire circumference in the range of 0.5 to 2%. The cut pattern of the preferred embodiment of the invention has the cut pattern arranged in the six rows of 0, 53, 21, 89, 34 and 72 percent respectively of the cut pitch P of the cord relative to row R_1 and repeated within each row with the cut length P, wherein the cut pitch percentage P is 20.9%. The circumferential offset O between two adjacent segments 19, expressed in percentage of M, is 1.16%. The overlay cord length L is defined by $L = P * M$ where M is the tire perimeter measured at the tire centerline in millimeter.